

REPORT OF ACTIVITIES OF THE DEPARTMENT OF WATER RESOURCES

by

**George T. Qualley, Chief
Division of Flood Management
Department of Water Resources
The Resources Agency
State of California***

WATER CONDITIONS

As of November 30, 2008, statewide hydrologic conditions were as follows: precipitation, 85 percent of average to date; runoff, 55 percent of average to date; and reservoir storage, 70 percent of average for the date. Sacramento River unimpaired runoff observed through November 30, 2008 was about 0.9 million acre-feet (MAF), which is about 63 percent of average. (On November 30, 2007, the observed Sacramento River unimpaired runoff through that date was about 0.8 MAF or about 60 percent of average.)

On December 1, the Northern Sierra 8-station Index had accumulated a seasonal total of 8.6 inches, which is 90 percent of the seasonal average to date and 17 percent of an average Water Year (50.0 inches). During November 2008, the 8-Station Index received 5.5 inches, about 87 percent of average. Most of November's rainfall occurred at the beginning of the month.

It will take a significantly above average rainfall season to alleviate current drought conditions. For the 8-Station Index, Water Year 2008 was the 15th driest year out of 88 years of record. The Spring of 2008 turned out to be extremely dry. The Water Year 2008 combined March through June total precipitation was only 3.4 inches, the driest on record (since 1921). The 2-year combined total precipitation for Water Years 2007 (37.2 inches) and 2008 (34.9 inches) was 72.1 inches, the ninth driest 2-year period on record.

Selected Cities Precipitation Accumulation as of 12/01/2008 (National Weather Service Water Year: July through June)					
City	Jul 1 to Date 2007 - 2008 (in inches)	% Avg	Jul 1 to Date 2006 - 2007 (in inches)	% Avg	% Avg Jul 1 to Jun 30 2007 - 2008
Eureka	5.52	57	8.91	91	14
Redding	4.13	58	4.76	67	12
Sacramento	3.22	89	1.97	54	17
San Francisco	2.65	68	2.71	69	13
Fresno	1.61	78	0.33	16	14
Bakersfield	1.06	93	0.47	41	16
Los Angeles	1.87	97	2.03	105	12
San Diego	2.67	142	1.40	74	24

Key Reservoir Storage (1,000 AF) as of 12/01/2008								
Reservoir	River	Storage	Avg Storage	% Average	Capacity	% Capacity	Flood Control Encroachment	Total Space Available
Trinity Lake	Trinity	995	1,614	62	2,448	41	—	1,453
Shasta Lake	Sacramento	1,331	2,777	48	4,552	29	-1,921	3,221
Lake Oroville	Feather	999	2,192	46	3,538	28	-2,164	2,539
New Bullards Bar Res	Yuba	476	523	91	966	49	-320	490
Folsom Lake	American	209	467	45	977	21	-368	768
New Melones Res	Stanislaus	1,123	1,318	85	2,420	46	-847	1,297
Don Pedro Res	Tuolumne	1,036	1,311	79	2,030	51	-654	994
Lake McClure	Merced	257	449	57	1,025	25	-418	768
Millerton Lake	San Joaquin	180	218	83	520	35	-256	340
Pine Flat Res	Kings	153	376	41	1,000	15	-509	847
Isabella	Kern	111	150	74	568	20	-59	457
San Luis Res	(Offstream)	410	1,247	33	2,039	20	—	1,629

The latest National Weather Service Climate Prediction Center (CPC) long-range weather outlook for December 2008, issued November 30, 2008, forecasts average precipitation for all of California, except for the southeastern corner of the State where below average precipitation is expected.

FLOOD OPERATIONS BRANCH

Joint State-Federal Operations Center Section (FOC) is involved in the following activities related to emergency preparedness and response:

- County OES Coordination Meetings:
 - The FOC Chief and staff, with NWS, Cindy Matthews, have visited approximately 10 County OES offices that have forecast points and/or are listed on the high water notification sheets. The purpose of the meetings has been to update the county OES offices with the changes in the FOC and improve lines of communication.
- Pre-Season Meetings:
 - The FOC staff is working closely with the Flood Operations Branch (FOB), the National Weather Service, the U.S. Corps of Engineers (USACE), the California Conservation Corps and the OES to conduct preseason meetings in Northern, Central and Southern California. Over 100 people have attended these meetings through December.

The FOC and FOB staff is working closely with the Eureka Flood Center (EFC), NWS and North Coast agencies on an additional pre-season meeting was held on December 4, 2008, in Eureka.
- Early Season Training
 - The FOC flood fight training sessions continue through the end of flood season. As of December 400 people have been trained; of that group 100 were DWR employees.
- Directory of Flood Officials:
 - The 2008 Directory of Flood Officials was completed and is available. Copies were sent out during the week of November 3rd.
- Emergency Action Plan:
 - The FOC Staff continue to attend and participate in local reservoir and utility district Emergency Action Plans (EAP), face-to-face meetings, and tabletop exercises. The FOC staff plan attended the following recent EAP functions:
 - Drum- Spaulding, Narrows, Chili Bar EAP (PG&E) Dec 10th.
 - Phoenix and Spring Gap EAP (PG&E) Dec 11th.

- FOC Preparedness:
 - The FOC staff will work closely with Decision Support Section staff to ensure that the computer and video equipment in the FOC is prepared for the current flood season.
- Upper Jones Tract:
 - The FOC continues to monitor and coordinate with RD 2039, DSMO and USACE regarding the 2004 Upper Jones Closure site.
 - The FOC has developed an action plan.
- Santa Barbara County Mud/Debris Flow Concerns
 - On November 21, 2008 at approximately 1800 hours, Tom Fayram, Director, Santa Barbara County Public Works requested State flood fight resources to address fire-impacted watersheds due to the 2008 Gap and Tea fires. Residences, businesses, and infrastructure in these areas are at risk of flooding and mud/debris flows. Key infrastructure includes the Santa Barbara airport, Highway 101, water and wastewater pipelines and treatment plants, two hospitals, and several schools.
 - The FOC coordinated the loading and transport of two containers of flood fight materials from the Southern California Storage Yard in Los Alamitos to Santa Barbara County incorporation yard in City of Santa Barbara. The containers are and will be used at needs by Santa Barbara County Operations Area representatives to protect life and property due to these fires.
- Orange County Mud/Debris Flow Concerns
 - The Governor's Office of Emergency Services (Cal OES) has requested, on behalf of California State Parks, additional flood fighting supplies to be delivered to Yorba Linda, CA.
 - The FOC coordinated the loading and transport of four containers of flood fight materials. The containers were sent to the DWR's Southern California Storage Yard in Los Alamitos and to Yorba Linda - Box Canyon Park. The containers are and will be used at needs by Cal OES and Orange County Operations Area representatives to protect life and property due to recent fires in the watershed above Yorba Linda.
 - DWR sent an engineer from the Division of Safety of Dams and a Southern Region flood fight coordinator to inspect two debris basins in the Yorba Linda area. The U.S. Army Corps of Engineers responded to DWR's request for technical assistance.

Local Emergency Preparedness and Response Section

Staff is completing an In-kind Services Agreement with the U.S. Army Corps of Engineers (Corps). The Agreement will allow DWR access to Corps mapping products of select Delta areas. The Corps will provide the maps to DWR and DWR will post and maintain the maps on our website. The In-Kind Services agreement is now being reviewed by DGS.

Staff has selected three cities for a pilot project to develop comprehensive flood preparedness, response, and recovery plans. The pilot communities' plans will serve as examples for other communities with similar flood hazards throughout California. The cities selected to participate in this study are: Arcata, Marysville, and San Bernardino. DWR, with its consultants, have met with city officials and is developing the plans.

Staff is currently working on an Emergency Action Plan for the Delta. This EAP focuses on DWR's roles, responsibilities, and actions in response to a 20 island failure/50 levee breaches due to an earthquake.

Staff along with GEI Consulting is working on developing a Delta Flood Emergency Preparedness and Response Plan (DWR Delta EPRP) that will address flood emergencies in the Delta. The content of the plan will include mitigation, preparedness, response, and recovery from flood emergencies. This document is scheduled for draft release in October 2009. This report is part of the DWR's FloodSAFE initiative and will enhance DWR's ability to respond to a catastrophic flood event in the Delta.

FOC staff, along with its consultants, are in the process of preparing the Delta Multi-Agency Integrated Flood Emergency Operations Plan (Delta MIF-EOP). The Delta MIF-EOP will be an integration of local agency EOPs, the USACE Delta Levee EMRP, and the DWR Delta Flood EPRP. To the extent possible, this document will be prepared from plans and programs already existing and underway for the Delta. This document will make the roles and responsibilities and possible resources available to all emergency responders and stakeholders in the Delta clearer. Local agencies, the Corps, Cal-OES, and other stakeholders in the Delta are engaged in a DWR sponsored "Working Group" that will continue this process. This group will review, comment and provide input into the Delta MIF-EOP.

Flood System Analysis Section

State Emergency Assessment Team (SEAT) Reports. As of December 4, 2008, OES has final draft SEAT reports for the following fires: Basin, Gap, Butte, Shasta, Summit, Piute, Telegraph, Marek, and Mendocino. Staffs from the Flood Operations Branch are summarizing key information from the SEAT reports to support the Flood Operations Center in the event of an emergency. As winter

approaches and rainfall starts, areas near the fire locations have potential threats to life and property at various levels (low/medium/high) due to debris flows and/or mudslides. A 1-pager is also being drafted summarizing the fire (acreage burned, county impacted) and will include the Governors Executive Order #'s, DWR staff deployments to SEAT teams (and duration), and which fires have been declared FEMA emergencies.

Decision Support Section

- Modernization of the Division of Flood Management's web portal

On Monday, November 17, 2008 section staff launched the Sacramento-San Joaquin Drainage District Boundary Maps as part of the Central Valley Flood Protection Board (CVFPB) website at http://www.cvfpb.ca.gov/ssjdd_maps/.

To comply with AB 162, this series of maps is provided to help cities and counties determine if they are within the jurisdiction of the Sacramento-San Joaquin Drainage District and, therefore, subject to compliance under the new law.

On Thursday, November 20, 2008 section staff posted the Draft Environmental Impact Report (EIR) for the Dutch Slough Tidal Marsh Restoration Project as part of the Division of Flood Management's web portal at <http://www.water.ca.gov/floodmgmt/dsmo/ecb/maep/dutchslough/deir/>. The project will restore and enhance western Delta habitat for fish and wildlife.

- Modernization of the Flood Operations Center Information System (FOCIS)

On Monday, October 20, section staff conducted a pre-Alpha review of the new Flood Operations Center Information System (FOCIS) with Hydrology and Flood Operations Office (HAFOO) staff. Feedback from HAFOO staff is being incorporated into the design to finalize the user interface and system features of FOCIS before an Alpha release is provided to staff for testing. FOCIS is the State-Federal Flood Operations Center (FOC)'s Information System used for State-mandated tracking of the Department's response to water-related incidents and emergencies.

- Modernization of the FOC Geographic Information System (FOC GIS)

Staff provided mapping support to HAFOO staff for the Inyo County Flood Assessment Report; after-fire flood assessment review of State Emergency Assessment Team (SEAT), Burn Area Emergency Response (BAER), and Burn Area Recovery Task Force (BARTF) reports; flood assessment of the Tea Fire area; and the Golden Guardian functional exercise. Additionally,

staff developed state, county, and city-level maps for the Sacramento-San Joaquin Drainage District Boundary Maps series incorporated into the Central Valley Flood Protection Board (CVFPB) website. FOC GIS is part of the decision support tools used by the Flood Operations Center to respond to water-related incidents and emergencies.

- **Modernization of the Flood Operations Center IT Assets**

Section staff provided technical support to HAFOO staff for the Golden Guardian functional exercise including on-demand bug fixes to the existing Flood Operations Center Information System (FOCIS). In addition, more than 60 users are signed up for webcasts of the Weather/Hydrology Briefings. Weather/Hydrology Briefings are generally conducted during flood season to keep emergency response partners informed of any potential flooding or conditions of concern. The section also continued to maintain IT assets for the Flood Operations Center and provide first-level PC support to the Flood Operations Branch.

Emergency Response and Security Section

Exercises:

- On November 13th and 14th, we participated in the statewide Golden Guardian functional exercise. This exercise allowed the FOC an opportunity to practice activities that are conducted during an emergency and identify areas where improvements are needed.
- On December 10th, ICT-1 will be conducting a field exercise on Twitchell Island.
- On December 12th, we will be conducting a tabletop exercise to test the current draft of DWR's Delta EOP. Representatives from the 5 county OES's, state OES and USACE have been invited to observe and provide feedback.

Equipment:

- To improve our ability to deploy the Communications Trailers, we have started training additional staff including members from each of the ICTs on setup and use of the trailers.
- In response to the potential threat of debris flows in Southern California during the Thanksgiving week storm, flood fight materials were mobilized to be used for advanced measures.

MAINTENANCE SUPPORT BRANCH

Willow Slough Bypass Slipout Repair

On October 17th, the DWR Sacramento Maintenance Yard completed the repair of a 140 foot long slipout that occurred along the south levee of the Willow Slough Bypass in Yolo County. The repair was made using a rock and soil mix and took approximately two weeks to complete.

Maintenance Area 9 Pipeline Abandonment

The Central Valley Flood Protection Board requested DWR during their October 19th, 2007 meeting to abandon a pipeline owned by M&H Realty Partners by way of Board Order 07-01. This order was issued in response to the owner not complying with their inspection or maintenance requirements in accordance with their permit conditions. On October 16th, the DWR Sacramento Maintenance Yard completed the abandonment of the pipeline by grouting the length of pipe. A final project report will be sent to the CVFP Board as well as the Corps.

Levee Road Repairs

This project restored the gravel surface on 44 miles of State-maintained levee crown roads at a cost of \$2.2 million. All scheduled work has now been completed. Specific locations include the Sacramento Bypass, Willow Slough, Yolo Bypass, Putah Creek, Wadsworth Canal and the Sutter Bypass.

DELTA LEVEE PROGRAMS

All 68 work agreements for the FY 2008-09 Subventions Program have been mailed to local agencies for signature. Local agencies must return signed agreements to DWR no later than June 30, 2009. Fifteen signed work agreements have been received to date. These have been forwarded to the CVFPB Executive Officer for signature.

The Board's executive officer executed 61 work agreements in FY 2007-08. DWR received budget information for 60 final claims totaling \$23.4 million. DWR anticipates reimbursing participating districts a total of about \$17 million. Staff has processed advance claims and progress claims to date in the amount of \$3,595,797.

DWR will no longer consider FY 2004-05 claims from RD 2113 (Fay Island) since the district has not met its mitigation obligations. DWR and DFG have gone to extraordinary lengths to assist the district in meeting its mitigation obligations. We regret that RD 2113 has not been able to meet its obligations.

The Delta Risk Management Strategy (DRMS) study is nearing completion. The Phase 1 final report and executive summary should be completed and released to the public near the end of January 2009. Phase 1 efforts consist of the assessment of levee failure and flood risks in the Delta. Phase 2 efforts consist of the analysis of various measures to mitigate Delta levee failure and flood risks. The results of Phase 2 efforts should be available around the end of January 2009.

STATEWIDE GRANTS BRANCH

Subventions Program

The second public comment period for the draft Proposed Assembly Bill 1147 (AB1147) Regulations has closed. Subventions staff are preparing a response to comments to be included in a package of Proposed Regulations which, along with supporting documentation, will be submitted to the Office of Administrative Law for review and approval.

Local Levee Urgent Repair Program

Local Levee Evaluation Program

DWR is awarding a \$5-million grant to Orange County for urgent repairs needed on San Juan Creek near San Juan Capistrano. Four other LLUR applications were denied based on incompleteness.

DWR has completed the technical review of sixteen LOLE applications and has presented its findings to DWR Selection Panel to make final determination of awards. Final award selection is expected to be complete by the end of this calendar year.

DWR is proceeding with revisions to the Local Levee Assistance Program Guidelines in anticipation of another round of project solicitations. Proposed revisions to the Guidelines include expansion of the LOLE program to include hydraulic studies and allowance for credit against the local share of project costs for some work performed prior to the funding agreement.

Floodway Corridor Program

The 1600-acre Ecosystem Restoration and Flood Attenuation Project near the confluence of the San Joaquin and Tuolumne Rivers provides for restoration, habitat, and transitory storage. The program is studying the potential for flood detention of peak flows during major storms at this site. The Floodway Corridor program is studying several parcels in conjunction with a recommendation to acquire riparian areas along the Sacramento River. The purpose is to preserve river stability and prevent conversion to incompatible uses on land that cannot be feasibly protected from flood risk.

The section is exploring the possibility of advance mitigation for flood control projects on properties funded by the program at several sites, including in the Elkhorn Basin and near Woodson Bridge.

FLOOD PROJECT DEVELOPMENT BRANCH

PROJECTS AND STUDIES TO IMPROVE FLOOD PROTECTION FOR SACRAMENTO

Joint Federal Project at Folsom

Progress on the Folsom Dam Modifications Project (also known as the Folsom Dam Joint Federal Project) continues. In particular:

- The Bureau of Reclamation reports that procurement of a Phase 2 excavation contract for the spillway is not complete. Although a contract was initially awarded, a bid protest was filed and upheld by the Small Business Administration. Reclamation reports that they are developing alternate strategies to assure the construction schedule will not slip: "The plan is to still finish on time."
- The U. S. Army Corps of Engineers (Corps) is concentrating their efforts on completing the design of the control structure. Construction of the control structure is scheduled to begin in 2010. A 65% design submittal is due in the late spring of 2009.
- The Bureau of Reclamation and the Corps recently met in a design summit to confirm that both agency objectives are being met in the developing design. No significant problems were reported from the summit.

- The Corps continues to evaluate methodologies by which the control structure approach channel can be constructed to minimize construction risk and cost. Under consideration are various types of cofferdams for constructing the channel in the dry, and various methods of constructing the channel in the wet as well as alternatives that combine the techniques.
- Efforts are underway to develop an early approach channel excavation design package and construction contract that could take advantage of low lake levels to reduce the overall cost of the project. Environmental documents for the approach channel are therefore being expedited and should be available for this Board's consideration in early summer of 2009.
- Negotiations are underway to modify the Board's existing Project Cooperation Agreement with the Corps and SAFCA.

While there is an enormous amount of work left to accomplish, the project partners continue to work together to eliminate obstacles as fast as they arise. The project is on schedule for completion around the year 2015.

Folsom Dam Raise

Work on the Folsom Dam Raise Element of the project is temporarily on hold until significant progress is made on construction of the auxiliary spillway. Design efforts are estimated to resume in 2011.

American River Common Features Project

The American River Common Features Project continues to improve the levee system along the American and Sacramento Rivers in Sacramento. Current activities by key project elements are:

- Design for closing gaps in the slurry wall left at the locations of deep utility crossings or other major infrastructure in the 24 miles of slurry wall along the American River levees continues. The design for the R4 site is complete and construction is planned for June 2009. These repairs are commonly referred to as the WRDA 1996 Remaining Sites work.
- The installation of 4,300 feet of cut-off wall and levee raise in the Mayhew Drain area has been completed and reopened to public access. Due to issues encountered during cut-off wall installation, it was necessary to postpone construction of the closure structure to 2009 construction season. This work was authorized by WRDA 1999.

- Design for raising and widening three levee sections at Jacob Lane, Howe Avenue, and Highway 160 is underway. The design for Jacob Lane is complete and has been approved by the Central Valley Flood Protection Board. Construction of Reach A is complete where 5000 ft of levee was raised and widened. The construction of Reach B is planned for June 2009. This work was authorized by WRDA 1999 and commonly referred to as the North Area Contracts work.
- Planning activities for the preparation of the General Re-Evaluation Report is progressing according to schedule and is expecting to have a F3 conference in February 2009.

Emergency Levee Repair at RM 75.1, Sacramento River

An emergency repair project at the Pritchard's Lake pump station on the east levee bank (River Mile 75.1) of the Sacramento River under Permit 18112-Rev GM is complete.

South Sacramento County Streams Project

The South Sacramento County Streams Project protects the City of Sacramento from high water events in the Delta and from flooding associated with Morrison Creek, Florin Creek, Elder Creek and Unionhouse Creek.

The U.S. Army Corps of Engineers (Corps), in partnership with the Central Valley Flood Protection Board (CVFPB) and the Sacramento Area Flood Control Agency (SAFCA) has completed construction of flood protection improvements along Elder, Florin and Unionhouse Creeks between Franklin Boulevard and Morrison Creek.

- Elder and Florin Creeks, included the construction of nearly 2 miles of new concrete floodwalls, and the excavation and reshaping of approximately 1 mile of creek.
- Unionhouse Creek, included the construction of 1 mile of concrete floodwall along the north bank and approximately 1 mile of excavation and widening of the creek.

The thirty percent design for flood control features along Unionhouse Creek between Franklin Blvd and Center Parkway has been completed. The contract to complete the design has been awarded. Design is expected to be completed in late summer of 2009.

The design contract for flood control features along UPRR between Unionhouse Creek and Morrison Creek has been awarded. Design is expected to be completed in the fall of 2009.

PROJECTS AND STUDIES TO IMPROVE FLOOD PROTECTION FOR OTHER URBAN AREAS

West Sacramento Project

- Geotechnical analysis for the repair of the two levee slips is near completion. After analysis is complete, design and construction will follow and is tentatively scheduled for contracting in March 2009.
- A PCA amendment to accelerate funding has been approved by the Board, has been negotiated with the Corps and the Local Sponsors and is currently being processed for execution through the Corps.
- A General Re-evaluation Report (Study) for future work to provide 200-year level of protection for the West Sacramento area is under way. The Final Draft of a Project Management Plan (PMP) is complete and will be forwarded for internal review by the Corps this December. The PMP is a support document for a Feasibility Cost Share Agreement (FCSA), which is currently in the final stage of negotiation and will be introduced for Board approval at the December meeting. If the resolution to participate in the cost-share of the GRR is adopted, a Chief's report is scheduled to be complete in December 2011

Yuba River Basin Project

- General re-evaluation of the Yuba River Basin Project continues. The F4 conference was held May 29th, where it was concluded that there is a Federal interest in a multi-purpose project that strengthens levees in-place, provides setback levees, and restores river floodplains for both ecosystem restoration and flood risk management.
- The Marysville Ring Levee Improvement is a separable element of the Yuba River Basin Project. Authorization to initiate design and construction simultaneously with the GRR is underway. Once completed, Marysville will be afforded a high level of protection significantly sooner than originally scheduled. The Corps proposes to award a contract for design in early 2009 and expects execution of a Project Cooperation Agreement with The Central Valley Flood Protection Board to commence construction of the Ring Levee repairs in Fall 2009.

Sutter County Feasibility Study

The Corps and the Non Federal partners are working to refine the scope of the Feasibility Study. The team is reviewing proposed measures focusing on engineering effectiveness, acceptability from non-Federal sponsor perspective, and engineering performance. The Corps, State, and Sutter-Butte Flood Control Agency are working closely to develop an amendment to the Feasibility Cost Sharing Agreement.

Lower Cache Creek, Woodland Area Feasibility Study

The Corps is exploring the reformulation of alternatives and scoping for a new Feasibility Study for this project. The Corps estimates that the new Feasibility Study will be complete in 2011 with design of a selected alternative to commence in 2012.

Lower San Joaquin River Feasibility Study

Representatives from San Joaquin County, San Joaquin Area Flood Control Agency (SJAFA), CVFPB, Corps, and other local interests have worked together to prepare a Project Management Plan (PMP), a draft Feasibility Cost Sharing Agreement (FCSA) and a draft Local Feasibility Cost Sharing Agreement (LFCSA). The PMP and the FCSA have just been completed by the Corps and will now be processed through the State contracting system. The cost estimate for the study is \$10.2 million.

West Stanislaus Orestimba Feasibility Study

The project area is located in western Stanislaus County, California, including the city of Newman. Investigations are to analyze potential solutions for flood damage reduction, ecosystem restoration, and related purposes for Orestimba Creek.

- The hydraulic modeling of channel improvements for Orestimba Creek alternatives is complete for the initial alternatives. Additional modeling is needed for the new hybrid alternative.
- The Corps has developed preliminary costs, B/C ratios and net benefits for the 8 alternatives. From this analysis three alternatives were dropped from the study and a hybrid alternative was proposed.
- Currently, the Corps is trying to maximize the net benefits on the new hybrid alternative before determining the NED plan. The NED plan is expected to be proposed in early February.

Mid-Valley Area Levee Reconstruction Project

The Mid-Valley Reconstruction Project sites extend from the Tisdale Bypass to the Sacramento Bypass and include levees of the Sacramento River, Feather River, Yolo and Sutter Bypasses, and Knights Landing Ridge Cut. Project partners include the Corps, the CVFPB, and seven local agencies and Counties.

Currently a Limited Reevaluation Report (LRR) and associated environmental documents are being revised by the Corps for approval in 2009. Construction contracts for an additional 12 miles of levee upgrades could go out in Fall 2009 with construction following in 2010, if the LRR is approved.

Kaweah River Project, Terminus Dam

Though the dam construction is complete the Corps is continuing to monitor seepage around the project area. This monitoring program could take several years and the project will not be turned over until monitoring is concluded.

Efforts continue with regards to bringing the Board into fiscal balance with the local sponsors, KDWCD.

Other significant developments

Butte County is unable to cost share the Rock Creek/Keefer Slough Feasibility Study in this fiscal year due to the County's financial difficulties.

FLOODPLAIN MANAGEMENT BRANCH

Risk Notification Program

DWR invited local agencies' technical representatives to participate in a workshop to discuss levee flood protection maps being developed by DWR for the Upper and Lower Sacramento Valley Regions. This workshop hosted by the Sacramento Valley Flood Control Action Work Group, a subcommittee of the Central Valley Flood Control Association, and DWR, will be held at Woodland Community Center on December 19, 2008. Draft Levee Flood protection Zone Maps for the Sacramento Valley will be shown at the meeting. A comment review period of between 30 to 45 days is anticipated with additional workshops to follow if necessary before release of the LFPZ maps to the public. A community officials workshop for the San Joaquin valley area will be scheduled for January 2009. A preliminary set of Levee Flood Protection Zone Maps will be provided to the Board by the end of December.

Senate Bill 5 Building Codes Project

The Building Codes Project held its third Technical Advisory Committee Meeting on December 10, 2008. At this meeting, the Project Status Report was prepared for submittal to DWR Executive Division. A comprehensive review of the floodwater threats was also discussed. Two public workshops are tentatively scheduled for Sacramento and Modesto in January 2009. The 6 provisions under consideration will be matched with the floodwater threats described at the third TAC meeting.

Supervising Engineering, Dan Fua is a member of the TAC. Project details can be accessed at:

<http://www.water.ca.gov/floodmgmt/lrafm/fmb/fas/specialprojects/bldgcode.cfm>

LEVEE REPAIRS BRANCH

Sacramento River Bank Protection Project (SRBPP)

Repairs to four sites (American River 0.3L and 2.8L, Sacramento River 53.5R and Sacramento River 177.8R) have been completed. Out of the other four sites under construction, planting work is in progress at two sites (Cache Slough 21.8R; and Steamboat Slough 16.6R). Waterside rock placement work is finished at the other two sites (Sacramento River 49.7L and 52.3L) and plantings will be installed in December.

A total of 34 sites are under design for the Year 2009 and 2010 construction. The Corps and DWR are working together to resolve Land and Right of Way access issues. The goal is to repair at least 9,000 lineal feet of bank erosion damage in Year 2009 out of the remaining authorized 15,650 lineal feet left in this program. The remaining work will be completed in Year 2010.

San Joaquin River Flood Protection Project

Structural rock and landscaping work on all three sites (San Joaquin River Mile 42.3R, Paradise Cut Levee Mile 3.8L and Mormon Slough Levee Mile 11.8R) has been completed except some plantings at the lower bank on San Joaquin River Mile 42.3. This site requires adjustments to the lower rock bench and remaining plantings will be completed in spring, 2009.

DWR has completed priority ranking of sites for next year's construction based on criticality of damage and justification for repairs on the basis of Benefit Cost Analysis. Six sites are eligible for repairs in 2009.

The regulatory agencies have requested DWR to prepare Programmatic Environmental documentation of the future levee repairs projects on a long-term basis. Agencies position is that they are not willing to continue issuing biological opinions on site by site basis and would like to see overall programmatic done for the San Joaquin Flood Control System levee repairs work.

2006 Public Law (PL) 84-99 Rehabilitation Assistance Program

Repairs in 2009 including 127 flood damaged sites and a major slurry wall project on the Chowchilla Bypass Left Bank in the Lower San Joaquin Levee District have been completed. Work on Project Information Reports (PIR) and detailed engineering and environmental designs for the remaining 34 sites are in progress. 17 sites in RD 150 are being monitored for maintenance by RD 150 and if RD 150 meets maintenance requirements by spring 2009, these sites will be included in next year's program.

URBAN LEEVE EVALUATIONS

The Urban Levee Evaluations Branch was created to perform geotechnical levee evaluations on about 350 miles of urban levees. An urban levee is defined as protecting at least 10,000 people. The geotechnical levee evaluations will focus on the urban project levees in geographic areas of Reclamation District (RD) 17, RD 404, Natomas, West Sacramento, Marysville, Woodland, Davis, Stockton, MA9, American River, Sacramento, the Sutter Basin, and RD 784. This program is in the process of expanding to other areas within the Sacramento and San Joaquin Flood Control Projects with the Bond funding.

The purpose of these evaluations is to assist in developing a levee certification program based on geotechnical data, provide consistent formats for data (and associated data exchange), and provide an evaluation of the levee system based on geotechnical data. This evaluation will be conducted with the goal of providing 200-year level of protection in urban areas and the design profile level of protection in rural areas using the U.S. Army Corps of Engineers (Corps) underseepage criteria.

General

1. The Levee Evaluations Branch continues to work closely with RD 17, Natomas (SAFCA and RD 1000), Three Rivers, West Sacramento, and others within the Department and the Corps to review issues concerning early implementation projects.

2. At the request of Mr. Gary Hester, the Levee Evaluations Branch continues to support the Central Valley Flood Protection Board in assessing a crack in segment 1 of the Feather River levee across from Star Bend. This crack was first observed after slurry wall construction was completed. At this time, winterization measures and additional explorations and characterization of this area was recommended.
3. Weekly coordination meetings with the Corps continue so that subsurface explorations plans are approved in advance of work and efforts are not duplicated.
4. Issues of strength for use in design and an erosion toolbox were finalized in November 2008. These findings will be presented to the Independent Consulting Board the week of December 8, 2008. Because of need for closure on these issues, reports are being delayed so as to not have to repeat analysis efforts after these findings. This is being communicated to local stakeholders.

The work performed in November 2008 is broken into three geographic urban levee areas of North, Central, and South is as follows:

North Urban

1. Sutter Basin: The Corps finished reviewing the Draft Phase 1 Geotechnical Evaluation Report (P1GER) and URS will incorporate all review comments from the various agencies. The report will be finalized in January 2008. The Phase 1 Geotechnical Data Report (P1GDR) will be finalized and distributed to the local stakeholders in November 2008. Additional supplemental explorations that commenced on July 21, 2008 were completed in November 2008.
2. Marysville: Work on the draft Supplemental Geotechnical Data Report (SGDR) is continuing and should be submitted to DWR as a Draft in January 2008.
3. RD784: The draft Supplemental Subsurface Investigation Work Plan was delivered by URS to DWR and is undergoing an internal QA/QC process and Corps review. DWR at the request of the Central Valley Flood Protection Board will monitor GEI/TRLIA mitigation measures associated with the slope failure in Segment 1 along the Feather River.

Central Urban

1. West Sacramento: The draft SGDR for West Sacramento is underway and is expected to be delivered to DWR in December 2008.
2. Sacramento River: The final Technical Review Memorandum (TRM) for the east bank levees of Sacramento River (between and American River and Freeport) was delivered to DWR in September 2008. The final P1GDR for Sacramento River was delivered to DWR in November 2008. The draft P1GER for Sacramento River was delivered to DWR during the month of October 2008. The draft P1GER report is currently undergoing an internal DWR QA/QC process and Corps review.
3. NEMDC: The final P1GDR report for NEMDC-East levees was delivered to DWR in November 2008. A draft P1GER for NEMDC-East levees is currently underway and will incorporate field investigations from SAFCA's exploration plan prior to its expected release to DWR in December 2008. The final P1GDR report for NEMDC-West levees was delivered to DWR in November 2008. A draft P1GER for NEMDC-West levees is expected to be delivered to DWR in December 2008.
4. Natomas North, West, and South (NWS): The draft TRM for Natomas NWS, which encompasses previous studies completed on behalf of SAFCA, USACE, and DWR, was delivered to DWR in September 2008. This report is currently undergoing an internal DWR QA/QC process and Corps review.
5. American River: A draft SGDR for the American River levees is underway and is expected to be delivered to DWR in December 2008. The final TRM for the American River levees is expected to be delivered to DWR in December 2008.
4. Davis: Seepage and liquefaction analysis of the field data collected from the subsurface exploration is continuing for the draft P1GER.
5. Woodland: Seepage and liquefaction analysis is continuing for the draft P1GER.

South Urban

1. SJAFCA: The Draft P1GER for the Calaveras River Drainage was delivered to DWR in August 2008. This report went through an internal DWR QA/QC process and USACE review. The report is currently being revised based on review comments.
2. SJAFCA: The Draft P1GER for the Bear Creek Drainage was delivered to DWR in September 2008. This report went through an internal DWR QA/QC process and USACE review. The report is currently being revised based on review comments.
3. RD 404: The Draft P1GER for RD 404 was delivered to DWR in September 2008. This report went through an internal DWR QA/QC process and USACE review. The report is currently being revised based on review comments.
4. RD 17: The draft Supplemental Geotechnical Data Report (SGDR) for RD-17 was delivered to DWR in late November 2008. This report is undergoing an internal DWR QA/QC process and USACE review.
5. Greater Stockton Area Urban Non-Project Levees: In mid November 2008, DWR met with local stakeholders and SJAFCA in Stockton for the third monthly coordination meeting and briefing of planned activities. DWR is coordinating with the local stakeholders and SJAFCA the work plan that is being developed to commence the subsurface investigations along selected reaches of the urban non-project levees. Field exploration is scheduled to commence during mid December 2008. A draft Project Management Plan was delivered to DWR in November, 2008.

NON-URBAN LEVEE EVALUATIONS

The Non-urban Levee Evaluations Branch was created to perform geotechnical levee evaluations on about 1,250 miles of non-urban State/Federal project levees. A non-urban levee is defined as protecting 10,000 or less people. The geotechnical levee evaluations will focus on the non-urban State/Federal project levees in the Sacramento River and the San Joaquin River flood control systems. This project is in the process of expanding to include the 388 miles of appurtenant non-project levees; these are non-project levees that provide protection to the same levee systems that non-urban project levees do.

The purpose of these evaluations is to support the Central Valley Flood Management Planning (CVFMP) and other flood management related programs by determining if these levees meet defined geotechnical criteria and, if appropriate, identify remedial measure(s) to meet those criteria. This evaluation will be conducted with the goal of providing the design profile level of protection in non-urban areas using the DWR and the Corps levee design criteria.

Activities in November 2008:

1. The Non-urban Levee Evaluation draft Project Scoping Document development continued.
2. Project management plan development continued.
3. Geomorphic studies advanced to the next phase for the Sacramento and San Joaquin River flood control systems.
4. Regional Coordinators continued contacting the local agencies providing an overview of the FloodSAFE program and a heads up on a call that the consultants will be making to meet and collect any available historical data and to get the local agency's assistance in performing field reconnaissance.
5. URS began field reconnaissance work and meeting with local agencies to investigate levee historical performance and gather other available data for the Sacramento River flood control system.

2008 Accomplishments

Flood Control System Inspection, Documentation, and Forecasting

Local Agency Reporting Requirements (AB 156)

- » An AB 156 3-page Fact Sheet was distributed to all 107 Local Maintaining Agencies (LMAs).
- » Public presentations and workshops were held to explain the new program and reporting requirements.
- » Over half of the LMAs are now utilizing a new electronic reporting system, improving documentation consistency, communication, and assessment.
- » 60 percent of LMAs submitted self-inspection reports in summer, 2008.

San Joaquin Rivers Erosion Surveys

- » GIS mapping of erosion surveys was conducted by DWR and reported to appropriate LMAs.

Flood Control System Inspections

- » 44 percent of project levee inspections (1,613 miles) were completed in fall, 2008.
- » Completed inspections of 25 unleveed flood control project channels and major flood control structures. Pumping plant inspections are ongoing.
- » Use of GPS and portable computers greatly enhanced inspection efficiency.
- » Annual report was submitted to the Central Valley Flood Protection Board.



Flood Control System Documentation

- » Developing a comprehensive inventory and database of all features of the State-Federal Flood Control System in the Central Valley.
- » Identifying and cataloging all features that support the State Plan of Flood Control. This would enhance emergency response development of a decision support, and modeling/engineering analyses.

Reservoir Operations, Precipitation and Runoff Forecasting

- » Conducted a functional exercise for Yuba-Feather Forecast Coordinated Operations.
- » Assessed PRMS Model applicability for snowmelt and river forecasting.
- » Additional staff were trained for duty monitoring.
- » Initiated the expansion of the F-CO Program to other watersheds.
- » Developed and implemented numerous river forecasting and water supply forecasting upgrades.
- » Enhanced data gathering for flood forecasting, weather and climate change analysis.

Flood Operation Activities

Flood Center Readiness

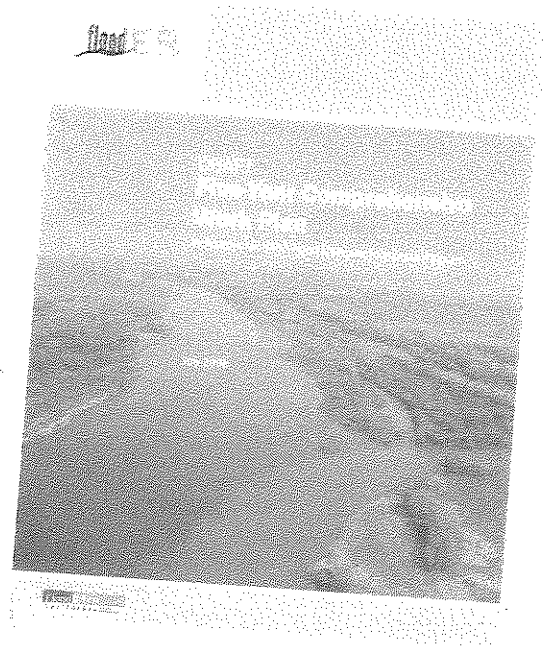
- » Responded to the following events:
 - Wheeler Island (January 2008)
 - Inyo County mud flow (July 2008 - continuing)
 - Upper Jones Tract (Boil site: May 2008; 2004 repair site: continuing)
 - RD 784 levee cracking (October 2008)
- » Supported State Emergency Action Team (SEAT) Operations for burn areas.
- » DWR Training: 300 flood fights techniques, 70 intermediate SEMS (total roster), and 300 introductory SEMS
- » 700 non-DWR personnel have been trained in flood fight techniques.
- » A table-top flood emergency exercise was conducted in December 2007 for FOC and ICT teams.
- » 17 pre-season flood coordination meetings were held (10 counties and seven broader-area briefings).
- » The Directory of Flood Officials was updated.
- » Emergency contact cards were updated.
- » The High Water Notification Call Log was updated.

Delta Flood Emergency Operations

- » Developed Delta Interim EOP.
- » Stockpiled rock in three facilities.
- » Developed a conveyor for loading and unloading rock.
- » Established the Delta Emergency responders "Working Group." The first meeting was held November 7, 2008.

Emergency Response Planning

- » Prepared a "Five-Year Comprehensive Work Plan" for improving flood emergency response throughout California.
- » Developed a Management Plan for preparing the Delta Flood Emergency Preparedness Plan (EPRP). It will be incorporated into the Multi-Agency Delta Emergency Operations
- » In cooperation with local emergency responders, we are creating a template for preparing local agencies' flood emergency response plans. Three example or "pilot" communities have been selected for the pilot projects.
- » The DWR Flood Emergency Response Plan communication annex was updated.
- » Developed a communication plan and brochures to inform stakeholders and the public about flood emergency response activities.



Flood Center Coordination and Training

- » Will conduct a DWR Delta EOP exercise (December 2008).
- » Will participate in a Golden Guardian exercise and provide support (November 2008).
- » Will conduct additional pre-season flood briefings (Monterey area: November 2008; North Coast: December 2008; two additional county meetings).
- » Will conduct additional DWR and external agencies flood fight training.

Inspections

- » Approximately 878 miles of levee remain to be inspected; awaiting the end of agriculture season to clear grass from levees.
- » Planned to inspect the remaining levees by November 30; pumping plant inspections by December 15.
- » Assignment of annual maintenance ratings to be completed by December 31.
- » This year's inspection results are scheduled to be submitted to USACE January 15, 2009.

Flood Center Technology Advancements

- » Integrate GIS and data management for real-time flood operations.
- » Real-time reporting of levee geotechnical information during high water.
- » Use of GPS and field electronic notebook for levee inspection.
- » Upgrade Flood Center with high-tech, real-time displays of flood information.

Flood Emergency Operations

- » Update Department Emergency Response Plan.
- » Enhance/develop local agencies' flood emergency response plans.
- » Develop DWR Delta Flood EPRP.

- » SEMS training for 250 staff and flood fight techniques for 750 LMA staff each year.
- » Conduct annual exercises to ensure flood readiness.

Precipitation and Runoff Forecasting

- » Develop an enhanced watershed model for flood forecasting.
- » Update Central Valley hydrology.
- » Conduct climate change analyses.
- » Conduct system re-operation studies.
- » Develop an enhanced snowmelt forecasting model.

Reservoir Operations Enhancements

- » Develop tools for five-day reservoir release forecasts.
- » Develop five-day watershed/inflow forecasts with probability range.
- » Expand Forecast-Coordination Operations throughout the Central Valley.
- » Launch a forecast-based reservoir operations program.

Flood System Conditions

- » Assess urban area flood protection structures.
- » Fully implement AB 156 reporting requirements.
- » Enhance data collection network and exchange program.
- » Develop a Decision Support System for the Flood Center.

Five Year Plan Budget Augmentation

Element	Total (in millions)
Real-Time Flood Conditions, Status, & Warning	\$10.0
Climate Data Collection and Precipitation/Runoff Forecasting	\$12.2
Reservoir Operations and River Forecasting	\$11.0
Flood Operations Emergency Response	\$17.8
Delta Flood Preparedness, Response, and Recovery Project	\$145.0
Updated Hydrology and System Re-operations*	\$26.0

*Managed by DPLA and DFM.

Critical Success Factors

Stable Funding and Overhead Expenses for Flood Emergency Response Program

A Stable General Fund for the flood emergency response core elements and data monitoring programs is critical for HAFOO operations. Past budget cuts had devastating impacts on the program, including serious curtailment of training, exercise and monitoring programs, obsolescence of technologies, and extensive staffing limitations.



Continued Recognition of Real-Time Data Collection and Management as the Core Element of Flood Operations

A real-time hydrologic data collection network and associated data management and exchange system is one of the most critical elements of flood emergency response. Developed and continually updated using HAFOO expertise in flood management, the data exchange program demonstrates DWR's credibility throughout the State among partner agencies and local flood responders. Continued support from DWR executives for this integral, successful program is essential for a robust flood emergency response in California.

Maintain Core Emergency Response Organizational Function While Supporting Bond Initiatives

Flood Emergency Response activities need to maintain a higher priority over other project related activities. Multiple program activities can disrupt core organizational function, leaving the HAFOO and DWR vulnerable to becoming under-resourced and under-trained during an emergency.

Organize DWR to Effectively Respond to Emergencies

DWR should review its organizational effectiveness in responding to flood emergencies. More robust participation of the entire DWR organization is needed in flood emergency, flood preparedness, and training. This issue should be comprehensively addressed in the DWR Emergency Response Plan, incorporating organizational recommendations from the DWR Emergency Response Plan in an updated Water Resources Engineering Memorandum 63. This would clearly outline the responsibilities of all Divisions and Offices in DWR regarding emergency response.

Establish a Flood Emergency Fund

To more quickly and effectively respond to flood events throughout the State, and reduce loss of lives and property, it is recommended that a Flood Emergency Fund (E-Fund) be established. The E-Fund will authorize DWR to assess and respond to any potential flood event considered to be an imminent threat to lives and property without any delay, prior to declaration of a flood emergency when State and/or federal funding becomes available.

Overtime Compensation for Emergency Response Activities

Proper compensation for overtime should be given to managers for their long hours during flood season. During events, managers may be required to work long hours; up to 14 hours a day, often on nights and weekends. The Governor's Office of Emergency Services has provided compensation for similar tasking situations via Emergency Declarations, such as in response to the 2007 Fire Storm.

Develop an Administrative Order Between DWR and the Office of Emergency Services

DWR should improve and expand its working relationship with the Office of Emergency Services by developing a broad interagency agreement that facilitates a working relationship, particularly in preparing the Flood Emergency Operations in the Delta and administration and use of emergency response funds.